

ABSTRACT OF THE DISCLOSURE

The present invention provides a technology of manufacturing and driving a high speed/high density optical storage system using one-dimensional multi-function/multiple probe columns. The present invention employs a scanning type multi-function probe to perform high-density data recording/reading in excess of a diffraction limit of light. Also, the present invention adopts a multiple probe array shape arranged in a row in order to be easily implemented with rotating disk media. Thus, as each of the probes divides data to perform recording/reading, the transfer rate of data can be increased by the number of the probes. Each of the probes is manufactured using electrical and thermal conductive materials and is attached to an AFM (atomic force microscopy) type cantilever. Thus, as a gap of the probes can be independently controlled, the probes can contact the media as necessary. Thereby, recording by light can be performed or recording can be performed using electricity or heat. Therefore, the present invention can significantly reduce the time required to record data and can variously select the type of recording media. Further, the present invention can implement high-density/high-speed optical probe data storage system.